some indigenous materials of New Zealand suitable for the manufacture of paper. The plants enumerated occur in great abundance in different parts of the colony, and, it is said, are being yearly destroyed to an enormous extent by the progress of settlement. Most of the plants alluded to in this paper belong to the endogenous group, Liliaceæ and Cyperaceæ being the chief natural orders. In the genus Astelia a group of small tufted sedge-like plants belonging to the first-named order, five species of which are described as occurring in New Zealand, four are recommended, both on account of the quantity of fibre contained in their leaves, as well as for the abundance with which the plants grow. *A. Solandri*, the Tree-flax of the colonists, is a plant with numerous radical leaves, from one to two feet long, thickly clothed at the base with shaggy silky hairs, and containing a quantity of good fibre. It is abundant on lofty trees and rocks throughout the colony, resembling in the distance the nest of some large bird. "Hundreds of tons" of this plant, it is said, "are destroyed on every acre of forest-land cleared in the North Island."

A. Banksii and *A. Cunninghamii*, both of which have a similar habit to the first-named species, but with narrower and much longer leaves, sometimes from three to six feet in length, produce a superior fibre. The first is found in great abundance in wooded places near the sea, and the latter is common on trees and rocks. Both are abundant in the North Island, "but their southern distribution is uncertain."

A species of Astelia, known as the Kauri Grass, and called by Mr. Kirk *A. trinervia*, is said to be "the most abundant of all the species, occasionally forming the chief part of the undergrowth in the northern forests up to 3,000 ft., and so dense that it is often difficult to force one's way amongst the interlaced leaves, which are from three to eight feet long, and of a paler green tinge than either of the preceding. It could be procured by hundreds of tons, and as, like other species, it is found in situations not adapted for ordinary cultivated crops, a permanent supply might be fairly calculated upon. Experience has shown that it may be cut yearly."

In the allied genus Cordyline, which is composed of shrubby or small palm-like trees, the Ti, or cabbage-tree (*C. australis*), is the most important. It attains the greatest height of any of the New Zealand species, averaging from ten to twenty or even thirty feet, and producing a trunk usually from ten to eighteen inches in diameter, but sometimes even three feet across. The plant is very abundant in many districts, and the leaves contain a very large quantity of fibre. *C. Banksii*, a smaller growing species, with a trunk from five to ten feet high, produces a fibre of superior quality, but less abundant; the plant, however, is very plentiful on the margins of forests, gullies, &c., all over the North Island, and in the northern parts of the South Island.

That the leaves of the Cordylines are suitable for paper-making there can be no doubt. In appearance, when dry, they very much resemble the so-called palmetto leaves which have recently been brought into this country from America for the purpose of competing with esparto. These palmetto leaves are those of one or more species of Chamærops, perhaps *C. serrulata*, which is known in some parts of the Southern States as the Saw Palmetto. The leaves of *Cordyline australis* are not altogether unknown in Europe as a paper material, for it appears that some years since a quantity was sent to England from New Zealand specially for trial, and were made into paper at a mill in Yorkshire: at that time the leaves were highly recommended for the manufacture of a superior kind of paper. A leaf somewhat similar, but generally of softer texture, is that of the genus Freycinetia. *F. Banksii*, known as the New Zealand Screw Pine, is abundant in most woods, and it is said that the leaves might be procured by thousands of tons. *Gahnia setifolia*, which is abundant in both islands and capable of being procured in almost unlimited quantity, is recommended for the manufacture of coarse paper. The Gahnias are a group of tall-growing, coarse, rigid cyperaceous plants, with long, harsh, cutting leaves, from which fact the plants are known in some parts of the colony as "cutting grasses." The genus is distributed through New Zealand, Australia, Tasmania, the Malayan and Pacific Islands.

The large order Compositæ, containing as it does such a variety of plants, from trees down to shrubs and herbs, might be expected to include many whose woolly foliage would prove useful for paper-making. The genus Celmisia, however, is the only one mentioned in the paper under consideration; the species are perennial bulbs, with radical, rosulate, simple leaves, mostly covered with a white or buff-coloured tomentum, which gives them a leathery texture, and hence the plants are called Leather-plants, or Cotton-grass. The commonest species in the islands is *C. longifolia*, which ascends to an elevation of 5,500 feet, and varies much in height, length, and breadth of leaves, as well as in general robustness. *C. verbascifolia* is a fine species, with broad coriaceous leaves averaging from four to eight inches long, but, according to Mr. Kirk, growing sometimes to a length of two feet. *C. coriacea* is likewise an abundant species, with thick leaves from ten to eighteen inches long, and from half an inch to two-and-a-half inches broad, covered on their upper surface with matted silvery hairs, and on the other with thick silvery tomentum. These leaves are said to make a good paper material; it is certain that when dry they are very tough, and the natives make them into strong and durable cloaks.

The plants here enumerated are only a few of those considered likely to prove valuable in the colony for paper material; they are selected because of their being little or perhaps not at all known for economic uses. Such well-known plants as the New Zealand Flax (*Phormium tenax*) are passed by with a simple mention of the fact that a company has recently been formed in Auckland, specially for utilising its fibre in the manufacture of paper.

While on the subject it may not be quite out of place to mention, in reference to the notice on the use of *Zizania aquatica*, in NATURE, vol. xi. p. 33, that several of the North American daily papers, as the *New York Tribune*, *Montreal Gazette*, &c., are printed on paper made entirely from this plant, and that the promoters of its use in England propose to bring it to this country in the form of half-stuff, to save expense of freight.

JOHN R. JACKSON

A FRENCH OFFICIAL ACCOUNT OF THE ORIGIN OF THE ROYAL SOCIETY

WE find in the first volume of the "Memoirs of the French Academy" a few curious details relating to this subject which may be of some interest to our readers. We translate the text *verbatim*, with the addition of a few explanatory remarks. These details were originally published in Latin, by the first perpetual secretary of the Academy, and may therefore be considered as official.

"Full fifty years had elapsed (in 1666) since the learned men who lived in Paris began to meet at the abode of Father Mersenne, who was the friend of the most learned men in Europe, and was pleased to be the centre of their mutual visits.* MM. Gassendi, Descartes, Hobbes, Roberval, Pascal (father and son), Blondel, and some others met at this place (close to the Place Royale, in a convent). The assemblies were more regularly held at M. de Montmort's, Master of Request in Parliament (and

* Father Mersenne was the intimate friend of Descartes, and his philosophical propagandist. It was not deemed prudent by the writer to mention Descartes' name, except as coupled with others.

editor of Gassendi's works*), and afterwards at M. Thevenot's.† A few foreign visitors to Paris were present at these meetings. . . . It is possible that these Paris assemblies have given birth to several Academies in the rest of Europe. However, it is certain that the English gentlemen who created the Royal Society had travelled in France, and had visited at Montmort's and Thevenot's.

"When they were again in England they held meetings at Oxford, and kept on practising the exercises to which they had been accustomed in France. The rule of Cromwell was beneficial to these meetings. These English gentlemen, secretly attached to their legitimate lord, and unwilling to take any part in public affairs, were very glad to find an occupation which would give them an opportunity of living far from London without being suspected by the Protector. The Society remained in this state up to the time when Charles II., having resumed the kingly office, brought it to London, confirmed it by his regal power, and gave it privileges. So Charles II. rewarded the sciences which had lent an easy pretext for keeping the faith towards him."

The narrative explains that the creation of the Royal Society was an example given to Louis XIV. for establishing his Academy of Sciences.

THE TRANSIT OF VENUS

SINCE our last notice of the Transit observations, a letter, dated Mauritius, Dec. 10, has been received by the Astronomer Royal from Lord Lindsay, containing a detailed account of the results he obtained. Besides, a brief statement of the observations of Mr. Meldrum, the Director of the Government Observatory, Mauritius, has appeared in the *Times*, with news from other observers, which, with its comments upon them, we reproduce in a condensed form.

Mr. Meldrum, with a perfect telescope of six inches aperture, by Cooke, of York, has been fortunate enough to obtain an observation of the ingress, although both Lord Lindsay and the German party were prevented from doing this by the cloudy state of the sky. But, although Mr. Meldrum obtained the two interior contacts, clouds and haze were at intervals passing over the sun, which, in fact, was obscured during the greater part of the transit. At times, beautiful definitions of the planet were noted, especially soon after the first interior contact. Then there was a long period of obscuration, after which, most fortunately, the sun shone out for the second interior contact. Only the first exterior contact was lost, the sun not appearing at all until 6h. 16m. A few minutes before the last exterior contact the sun was again obscured, and when the clouds passed away the transit was over.

Lord Lindsay states that his expedition has been in a great measure successful. The morning of the 9th was cloudy before sunrise, and for a short time afterwards. The first external and first internal contacts were missed from this cause; the sun was not seen until 1h. 2m. after the first external contact, when it came out for a few minutes, when photographs and measures were obtained. It was not till 8 A.M. (local mean time) that it became fairly fine, and remained so with small periods of cloud obscuration until the end of the transit. Lord Lindsay took 271 plates, out of which number, perhaps, 110 will be of value. One of his photographs shows the second internal contact beautifully.

With the heliometer, Mr. Gill obtained five complete determinations of greatest and least distance of the centres of the sun and Venus, besides nine measures of cusps and two separate determinations of the diameter of Venus near the end of the transit. Dr. Copeland obtained, with the six-inch equatorial and Airy double-image micrometer, fifteen measures of least distance of Venus from the sun's limb, and ten measures of cusps. Dr. Copeland also observed the last internal and external contacts with this instrument. The last internal contact was observed with the four-inch equatorial and the polarising eye-piece by Mr. Gill. He also observed the last external contact with the heliometer. Both Dr. Copeland and Mr. Gill agree that the contacts of Venus and the sun are remarkably similar to those seen in the model. They also agree that any phenomena which could be classed under the head "black drop" took place and disappeared within a period of five seconds. All the photographic exposures are automatically registered on the chronograph by a method which gives the actual duration of the exposure. The heliometer observations were also registered there. Dr. Copeland observed by eye and ear; all other observations (photographic and heliometric) also observed by eye and ear as a check on the chronograph. The German expedition under Dr. Low got the third and fourth contacts, with three complete sets of heliometric measures.

With regard to the operations of the party sent out by the Government of Holland to Réunion, the further information shows that there, as at Mauritius, the ingress was missed altogether, in consequence of the bad weather. The second interior contact at egress was observed both by Dr. Oudemans and Dr. Soeters, not the least trace of the black drop being observed. Only nineteen plates could be exposed, and of these only two or three are considered of value. The observations with the heliometer were more successful. The party, instead of measuring the distance of the planet from the sun's edge along a radius, had calculated beforehand, for each ten minutes, the direction of the most favourable chord for determining the relative parallax of Venus; two sets of eight measures of this kind were recorded.

Some observations made at Colombo by Mr. George Wall, and communicated to the *Ceylon Times*, are of great interest, as here is again recorded an exact reproduction of the appearance observed by Chappe d'Auteroche in 1769. On this the *Times* remarks that it is clear that science will lose much from an incomplete discussion of all the observations made in 1761 and 1769. On this subject we also draw attention to the following letter which we have received from Mr. E. W. Pringle, dated Manantoddi, Wynaad, Dec. 13:—

"I make no apology for sending you a short account of the late transit as seen by me in Wynaad, especially as I feel some surprise at the difference between the expected and actual phenomena.

"Owing to non-receipt of instruments from England, I had to fall back on a small 2½" refractor by Cooke, of York, the definition of which is superb, even with a power of 53—that used on the occasion.

"My station was on a hill nine miles from Manantoddi, about 800′ above that place and 3,600′ above sea-level.

"The morning of the 9th was simply perfect; not a breath of air, and not a cloud, with the exception of a wisp or two of cirrus that the sun soon shook off.

"The plateau beneath was wrapped in the fleecy mantle that proved so disastrous to the eclipse observers of 1871, but this I could afford to despise from my more lofty station.

"I missed first external contact, and watched anxiously for the internal contact. When the planet was about half immersed, the entire disc became visible, for the portion external to the solar surface was surrounded by a fine silvery ring like a minute corona. This observation was verified by my brother, and the phenomenon was again visible at emersion.

"As first internal contact approached I looked carefully for the 'black drop,' but, to my astonishment, the horns of the sun grew nearer and nearer, and at last seemed to fade into the last portion of the before-mentioned silvery ring, without my seeing the smallest vestige of the far-famed 'drop,' or any apparent

* Montmort for years entertained Gassendi in his house. He was a very talented *bibliophile*, and all the books from his library now realise an immense value. He was a member of the Académie Française.

† Thevenot had travelled much, and was in constant correspondence with many travellers He had been appointed librarian to the King, and lived in the house where the library was kept, in what is now the Rue Vivienne, within a little distance of its present site.